

CLAIMS:

- Sub
a27
1. A method for fabricating an array of optical fibers, comprising the steps of:
providing a substrate for receiving the optical fibers;
forming in the substrate through-holes;
placing the optical fibers in the respective through-holes;
applying adhesive into the respective through-holes, each of the optical fibers being coated with the adhesive in corresponding one of the through-holes;
adjusting a position of each optical fiber after said placing the optical fibers in the respective through holes and after said applying adhesive into the respective through holes; and
curing the adhesive to fix the optical fibers in the respective through-holes.
 2. The method of claim 1, wherein the through-holes are formed to be spaced from each other by a predetermined distance.
 3. The method of claim 2, wherein the through-holes are formed to have a substantially same distance from the bottom of the substrate.
 4. The method of claim 1, wherein the adhesive is a metal solder, glass, heat cured epoxy, UV cured adhesive, or a combination comprising at least one of the foregoing.
 5. The method of claim 1, wherein the adjusting step comprises:
grasping an optical fiber with a position manipulator; and
adjusting the optical fiber in a first direction to be aligned in accordance with the reference measurements.
 6. The method of claim 5, further comprising adjusting the optical fiber in a second direction to be aligned in accordance with the reference measurements.

10058500.012802

7. The method of claim 6, wherein the first direction is one of vertical and horizontal directions in a surface perpendicular to the longitudinal direction of the through-holes, and the second direction is the other of the vertical and horizontal directions.

8. The method of claim 1, wherein the adhesive includes a UV-cured adhesive; and means are includes for protecting the UV-cure adhesive from UV light during the adjusting step.

9. The method of claim 8, wherein the UV-cure adhesive in all the through-holes is exposed to the UV light in case that all the optical fibers are aligned at a same time.

10. The method of claim 8, wherein the UV-cure adhesive in each of the through-holes is selectively exposed to the UV light in case that each of the optical fibers is separately aligned.

11. The method of claim 1, wherein the reference measurements include data representing target positions of cores of the respective optical fibers.

12. The method of claim 11, wherein the reference measurements include data representing distance between the core of each optical fiber and the bottom of the substrate.

13. The method of claim 12, wherein the reference measurements further include data representing distance between the cores of adjacent optical fibers.

14. The method of claim 1, wherein the substrate is a unitary substrate having the through-holes into which the respective optical fibers are inserted and the adhesive is injected.

15. The method of claim 1, wherein the substrate has lower and upper plates each having grooves to form the through-holes, each of the grooves of the lower plate being mated with corresponding one of the grooves of the upper plate to form corresponding one of the through-holes.

10058500-012802

Sub 7
a2 16. The method of claim 15, wherein each of the grooves of one or both of the lower and upper plates has a tapered portion so that each of the through-holes has an enlarged inlet portion into which an optical fiber is inserted.

10058900-012802 17. An array of a plurality of optical fibers, comprising:
a substrate having through-holes each extending in parallel with each other in a longitudinal direction of the through-holes;
adhesive filled in the respective through-holes; and
the plurality of optical fibers placed in the respective through-holes, each of the optical fibers being coated with the adhesive in corresponding one of the through-holes;
wherein cores of the optical fibers are aligned in accordance with reference measurements.

18. The array of claim 17, wherein the through-holes are spaced each other to have a predetermined distance between adjacent through-holes.

19. The array of claim 18, wherein the through-holes each have a substantially same distance from the bottom of the substrate.

20. The array of claim 17, wherein the adhesive includes one of metal solder, glass, heat cured epoxy, and UV cured adhesive, and combinations including at least one of the foregoing.

Sub 7
a2 21. The array of claim 17, wherein each of the optical fibers has no direct contact with side wall of corresponding one of the through-holes.

22. The array of claim 17, wherein the substrate has a unitary structure having the through-holes.

*22
conv'd.*

~~23. The array of claim 17, wherein the substrate has lower and upper plates each having grooves to form the through-holes, each of the grooves on the lower plate mating with corresponding one of the grooves on the upper plate to form corresponding one of the through-holes.~~

*add 7
a3*

10058900.012802